ATSDR Record of Activity (AROA)
Health Consultation

ORIGINAL (RED)

UID #: _ __ _ Date: 02 / 08 / 2006 Time: 8:30 am X

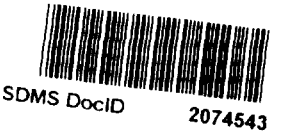
Site Name: Old Hamburg Gas Station Site **City:** Hamburg **Cnty:** Berks **State:** PA

CERCLIS #: PAN000306163 Cost Recovery #: 3AER Region: III

Site Status (1) X NPL _ Non-NPL _ RCRA _ Non-Site specific _ Federal
(2) _ Emergency Response X Removal _ Other

Activities

_ Incoming Call _ Public Meeting X Health Consult _ Site Visit
_ Outgoing Call _ Other Meeting _ Health Referral _ Info Provided
_ Conference Call X Data Review X Written Response _ Training
_ Incoming Mail _ Other



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1-EPA	2-USCG	3-OTHER FED	4-STATE ENV	5-STATE HLT
6-COUNTY HLTH	7-CITY HLTH	8-HOSPITAL	9-LAW ENFORCE	10-FIRE DEPT
11-POISON CTR	12-PRIV CITZ	13-OTHER	14-UNKNOWN	15-DOD
16-DOE	17-NOAA	18-OTHR STATE	19-OTHR COUNTY	20-OTHR CITY
21-INTL	22-CITZ GROUP	23-ELECT. OFF	24-PRIV. CO	25-NEWS MEDIA
26-ARMY	27-NAVY	28-AIR FORCE	29-DEF LOG AGCY	30-NRC
31-ATSDR				

Program Areas

_ Health Assessment _ Health Studies _ Tox Info-profile _ Worker Hlth
_ Petition Assessment _ Health Surveillnc _ Tox Info-Nonprofil _ Admin
_ Emergency Response _ Disease Regstry _ Subst-Spec Resch _ Other
x Health Consultation _ Exposr Regstry _ Health Education

Narrative Summary: The EPA Region 3 asked ATSDR-R3 to determine the public health significance of lead found in soil samples from the Old Hamburg Gas Station Site, Hamburg, PA and if the detected levels warrant a removal action. The site is located on the north side of West State Road and west of Industrial Drive. The site is bordered to the north with an open field (low lying, well maintained lawn-like area that appears to be used for picnics and other outside activities), to the west by a pond and railroad tracks, and to the east and south by Industrial Drive and West State Road, respectively. The 0.83 acre property has two separate residential dwellings (a rental house and mobile home) and two garage/storage buildings. Currently, children do not reside at either of the dwellings but a wood chip covered play area

exists behind the rental house.

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During the late 1990s, the property was evaluated as part of the Hamburg Lead Site. Investigators observed battery casings and chips in the surface soil. A groundwater monitoring well (MW) and residential water well (RW) are located on the property. Historically, battery casings and chips were used as fill material in many areas throughout the Northern Berks County area.

Environmental sampling data, consisting of a total of 43 surface soil (0-6 inches), 5 subsurface soil (12 inches) samples, and 2 groundwater samples (5 groundwater samples total including a duplicate, a trip blank and a field blank), were collected by EPA's contractor in November 2005 from the property. Surface soil lead concentrations ranged from <400 to 16,794 ppm. The highest surface and subsurface lead concentrations were observed at the same sample location. Subsurface soil lead concentrations ranged from <400 to 27,187. Samples were collected using a 40 foot interval grid pattern from areas where battery casing fragments were identified or other evidence indicated that fill material had been used. Twenty-three of the 48 soil samples were above the EPA site-specific action level of 400 ppm. The average lead concentration of the 23 samples exceeding the action level was 4,300 ppm. The surface soil sample from the play area was below 400 ppm and was collected from beneath the wood chips.

The residential drinking water well samples (RW-01 and RW-02) contained lead at 3.7 and 3.6 micrograms per liter (µg/L). The monitoring well sample (MW-01) had a lead concentration of 54 µg/L. The EPA's lead action level of 15 µg/L was exceeded in MW-01 (MW-01 is not used for drinking water).

Action Required/Conclusions/Recommendations/Info Provided: Based on ATSDR's public health conclusion categories, we have categorized this site as a "Potential Public Health Hazard", which means that exposure (past, current, and/or future) to lead in soil could result in elevated blood lead levels. Also, the reported soil lead concentrations warrant a removal action.

Based on observations of enzymatic abnormalities in the red blood cells at blood lead levels below 25 µg/dL and observations of neurologic and cognitive dysfunction in children with blood lead levels from 10-15 µg/dL, the CDC has determined that a blood lead level >10 µg/dL in children indicates excessive lead absorption and constitutes the grounds for intervention. The relationship between soil lead levels and blood lead levels is affected by factors such as the age of the population exposed to the contaminated soil, the physical availability of the contaminated soil, the bioavailability of the lead in the soil, and differences in individual behavioral patterns. While there is no clear relationship applicable to all sites, a number of models have been developed to estimate the potential impact that soil lead could have on the blood lead levels in different populations. In general, soil lead will have the greatest impact on the blood lead levels of preschool-age children. These children are more likely to play in dirt and to place their hands and other contaminated objects in their mouths. They are better at absorbing lead through the gastrointestinal tract than adults, and they are more likely to exhibit the types of nutritional deficiencies that facilitate the absorption of lead (ATSDR

2005).

Epidemiologic studies (Lanphear et al. 1998) have consistently found that children's blood lead levels (BLLs) increase by about 3.5 micrograms per deciliter for every 1000 ppm increase in soil lead levels. Given this relationship and others reported in the scientific literature, it is expected that the BLLs of children from daily exposure to lead at the Old Hamburg Gas Station Site could be greater than 10 ug/dL.

ATSDR recommends that soil removal activities be performed at the Old Hamburg Gas Station Site to mitigate potentially harmful exposure to lead.

ATSDR recommends that indoor dust levels from the two dwellings be evaluated for lead contamination following removal activities.

ATSDR's conclusions and recommendations are based upon the available information. If additional or new information becomes available, ATSDR is available to review the information and provide a determination as to the public health significance.

References:

Agency for Toxic Substances and Disease Registry (ATSDR). 2005. Toxicological Profile for Lead. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service. September 2005.

Lanphear BP, Matte TD, Rogers J, et al. The contribution of lead-contaminated house dust and residential soil to children's blood lead levels: A pooled analysis of 12 epidemiologic studies. Environmental Research 1998;79:51-68.

Signature: _____ Date: February 15, 2006